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SOURCE As indicated

ITEMS ON USSR WORK ON ORGANIC DIELECTRICS

[Numbers in parentheses refer to appended sources.]

Papers on Dielectrics Presented at 1948 Session

During the All-Union Scientific and Technical Session on Electrical Insulation held at Leningrad on 4-8 October 1946, various papers on dielectrics were presented. Among them were four papers dealing with organic dielectric materials:

1. "Electrical Properties of Copolymers" (fundamental work done at the [Leningrad] Physico technical Institute, Academy of Sciences USSR.
2. "Electron Conductivity in Non-metallic Crystals."
3. "Contemporary Tendencies in Syntheses of High Polymer Electrical Insulating Materials."
4. "Use of Synthetic Rubber for Insulation of Wire and Cables." (1)

Book on Electrotechnical Materials

A book by N.P. Bogoroditskiy, entitled Electrotechnical Materials (Elektrotehnicheskiye Materialy), discusses the connection between polarization, migration, and dielectric permeability. It also discusses the conductivity of liquid, gaseous, and solid dielectrics.

Chapter 5 treats organic insulating materials. Liquid and wax dielectrics, resins, asphalts, drying oils, lacquers and compounds, fibrous materials, plastic, rubber, and organosilicon materials are described. The author points out that the fundamental research in the most important fields of organic insulating materials was done in the USSR, and served as a basis for the development of new materials. (2)

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CLASSIFICATION    S-E-C-R-E-T

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S-E-C-R-E-TDevelopment of Varnished Fiberglass Cambric

The Laboratory of Insulation VEI (All-Union Electrical Engineering Institute), developed a clear varnished fiberglass cambric based on G-2 varnish (glyptal varnish modified with adipic acid) having good electrical properties. The material was produced in 1947 by one of the Glavelektroizolyatorprom plants. In 1946, Prof K. A. Andrianov developed a synthetic enamel (Viniflex) based on polyvinylformalethylal resin.(3)

Research in 1953

Some research on the dielectric properties of organic substances was done in 1953. The dielectric permeability was found to be linearly related to the iodine number of  $C_{18}$  fatty acids.(4) General formulas were derived for conductance and dielectric constant for solutions. These formulas can be converted to expressions for dielectric constant and coefficient of conductance in the Debye theory.(5) The dielectric constants and dielectric losses of molecular compounds of picric acid with benzene, naphthalene, and anthracene and also those of pure benzene, naphthalene, and anthracene have been measured. It was established that the dielectric constants for these compounds in the solid state have values that lie between those for the components of the molecular compounds and the molecular compounds themselves.(6)

SOURCES

1. Moscow, Elektrichestvo, No 1, 85, 1949
2. Ibid., No 5, 91, 1951
3. FDD Summary No 115, p 31
4. Moscow/Leningrad, Zhurnal Fizicheskoy Khimii, Vol 27, 1481, 1953
5. Ibid., 840, 1953
6. Ibid., 1686, 1953

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